

slender, with tufts of fine hair. Abdomen colorless or greenish, centered by the dark alimentary canal and silvery tracheal tubes; hair tufts on the sides gradually smaller posteriorly; lateral comb of the eighth abdominal segment a patch of fine spines about three rows wide.

In a spring pool, a small lake and a transient fresh-water marsh, Bellport, New York.

**Culex confinis** *Lynch.* (Plate X, Fig. 3.)

Head round, flat, narrowed before; eyes large, transverse; pale brownish, dark brown on the vertex; antennæ long, slender, uniform, the outer two-thirds black, tuft at the middle, small, often folded and invisible; three end hairs and a spine; mouth brushes normal. Thorax moderate, rounded, bulbous. Abdomen cylindrical, thick, the segments only slightly bulging, gradually a little smaller posteriorly. Hairs rather abundant in subequal tufts, short, scarcely any more than two-thirds the width of the thorax in length, less visible posteriorly. Air tube brown, subfusiform, about three times as long as wide with a double pecten below, normal; side combs of the eighth abdominal segment with a few teeth only, each with a dentate plate-like base; last segment longer than wide, brown ringed; double dorsal tuft rather short, the ventral brush also short but extending over nearly the whole ventral line of the segment. Anal processes slender, inconspicuous.

Found in a muddy puddle of rain water by the banks of the canal near Cabin John, Maryland.

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## THE LIFE-HISTORY OF URANOTÆNIA SAPPHIRINA *O. S.*

BY HARRISON G. DYAR, PH.D.

(PLATE XI, FIGS. 1-4.)

This mosquito is not common nor troublesome. The species is the only one of its genus at present known from North America. The larvæ occurred in a cold stream which was formed into a large pool by a dam and in a warm marshy pool. They occurred sparingly distributed and were not abundant. Both places were permanent bodies

of water and contained aquatic plants, *Lemna*, *Spirogyra*, etc. The water was somewhat stagnant. The locality was at Bellport, on the south shore of Long Island. The eggs form a boat-shaped mass floating on the surface of the water, much as in *Culex pungens*, but the mass is smaller, containing a less number of eggs and is less regularly elliptical, more angular. It floats less on the surface, the middle eggs being nearly half submerged. The sculpture and color of the individual eggs also are different. The newly hatched larva at once takes up the usual feeding position. This is essentially as in *Culex*, but the body is held more flatly, more parallel to the surface, yet below the surface film. Consequently, though feeding as *Culex*, the larvæ resemble *Anopheles* at a casual glance and were several times at first mistaken for them. The larvæ are fond of resting below the leaves of the *Lemna*, where they remain with the air tube penetrating the surface film and feed, often with a rotary motion of the body on the air tube as an axis. Occasionally they bend up to feed at the surface. They are not timid and often a considerable commotion of the water is necessary to send them to the bottom. The head may be partly rotated on the neck, but the habit is not so completely developed nor so frequent as in *Anopheles*, which regularly feeds with the head inverted. It has an elongate, dark brown head with a contrasting pale body, the hairs of the anterior abdominal segments markedly longer than those of the succeeding ones. Of the local species (at Bellport), it most suggests the species of *Anopheles*, as above noted. The long anterior hairs assist in the deceptive appearance. There seem to be four larval stages, the last three being essentially alike, except for the successively larger size. This is shown best by the head, as in Lepidopterous larvæ. The head gradually becomes paler, being black in the young larva and brown in the large ones. The pupa resembles that of *Culex*, but is very small and has unusually long air tubes. The species seems to breed continuously all summer, preferring warm stagnant pools of some size, containing *Spirogyra*. It did not occur in the marshes which were well filled with larvæ of *Culex sylvestris* and *C. sollicitans*.

The figures of the accompanying plate were drawn by Mrs. Perle N. Knopf from fresh specimens immediately after collection. I am indebted to Mr. D. W. Coquillett for verifying my determination of the species.

*Egg.* (Fig. 1.)—Erect, the micropylar end down, closely placed,

but not appressed, forming a triangular mass about 2 mm. in diameter. Egg elongate cylindrical, bluntly rounded at the large (micropylar) end, smooth without central elevation, tapering considerably to the small end; smooth, the terminal fourth roughly granular with large projecting granules. Dark brown, shading to black on the apical fourth.

*Stage I.* (Fig. 2.)—Head rounded elliptical, flattened, smooth, with four coarse, black setæ on the lower part of the face as in the mature larva; antennæ long, divergent, rather thick with the middle tufts very small. Black, paler above the mouth; eyes black; width about .2 mm. Thorax short, wide, flattened; abdomen slender, segments submoniliform, subequal; anal segment twice as long as wide, cylindrical, weakly chitinized, the four anal finger-shaped processes about half as long as the segment; terminal hairs in a tuft above and in a long brush below as usual. Air tube moderate, cylindrical, slightly tapering, blackish chitinized, about four times as long as thick. Hairs of the thorax long, equal; those of abdominal segments 1 and 2 similar; of segment 3 somewhat shorter and then successively shorter, those of segments 7 and 8 only about one-third as long as those of the first abdominal, but all similar hair tufts, differing only in length. Lateral combs of segment 8 distinct, but without as strong a plate as in the adult larva.

*Stage II.*—Head about .3 mm. wide; at first pale with a dark shade above, but soon turning black. Hairs of the thorax and first two abdominal segments long, black; the rest of the hairs short and stellate as in the mature larva.

*Stage III.*—Width of head about .4 mm. Other characters as in the last stage, but the head more blackish.

*Stage IV.* (Fig. 3.)—Head ovate, longer than wide, proportionately small, pointed before, the antennæ moderate, divergent. All brown black; width .6 mm. Thorax enlarged laterally, not annular, flattened to the size of the abdomen dorso-ventrally. Abdomen uniform, tapering a little posteriorly; last segment moderate with the usual four anal fingers. Eighth abdominal segment bearing the air tube, which is rather short, not longer than two segments, widened at the tip by four, distinct, flattened teeth, as long as the width of the tube. Lateral comb a large plate with a row of stout teeth on the posterior edge. All yellowish subopaque, the alimentary canal dark, edged by the silvery tracheal tubes. Hairs black, the thoracic ones

equal, long, those of the first two abdominal segments also long ; but the rest very short and inconspicuous, stellate. Dorsal tufts and ventral brush of anal segment long.

*Pupa.* (Fig. 4.)—Essentially as in *Culex*. Thorax and cases forming a large elliptical mass, round which the slender, distinctly segmented abdomen curves, bearing a pair of anal paddles. Segments dorsally tufted with stellate hairs and some small tufts about the eyes and between the prothoracic air tubes. Tubes long, slender, uniform in width, not flared, but slightly bent in the middle, about twelve times as long as wide.

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## NOTES ON SOME SPIDERS OF WALCKENAER, KOCH, AND OTHERS.

BY NATHAN BANKS.

The descriptions of new species in Walckenaer's *Insectes Aptères* fall into two classes: descriptions based on specimens, and descriptions based on figures. The former class are undoubtedly valid and I intend to accept them wherever I can apply them. Descriptions of figures, however, I hold, have no claim on the naturalist. Not only are they based on figures, but the figures have never been published. Many of the descriptions are sufficient for identification, but most are not. But no matter how complete, they are not descriptions of spiders ; but of figures of spiders. They rank with "hearsay evidence." I shall not use them nor list them ; I shall ignore them. The species Walckenaer described from specimens are usually marked with an "M," indicating, as he states, that the specimen was in the Paris Museum. In a few cases the type was in his own collection. In the following pages I have tried to identify such species that were described from the United States. The second volume of the "*Aptères*" bears date of 1837, it should be as late as 1842 since there are references in it to 1841.

A number of species described by C. L. Koch in "*Die Arachniden*" from the United States have never been identified by later arachnologists. Most of them can be easily placed ; a few are still doubtful.